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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10 064,869	08 26 2002	Jeffrey S. Brown	BUR920010223	6165

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IBM MICROELECTRONICS
INTELLECTUAL PROPERTY LAW
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ESSEX JUNCTION, VT 05452

EXAMINER

WEISS, HOWARD

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 03 03 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/064,869

Applicant(s)

BROWN ET AL

Examiner

Howard Weiss

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 ~~is~~/are pending in the application.
- 4a) Of the above claim(s) 17-20 ~~is~~/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTC-1449) Paper No(s) 2 6) ☐ Other

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Attorney's Docket Number: BUR920010223

Filing Date: 8/26/02

Continuing Data: none

Claimed Foreign Priority Date: none

Applicant(s): Jeffrey et al. (David, Edward, Beth)

Examiner: Howard Weiss

Election/Restrictions

1. The Applicants' election without traverse of Group I, Claims 1 to 16, in Paper No. 4 is acknowledged. Claims 17 to 20 are withdrawn from consideration as being for a non-elected invention. The Applicants are requested to cancel the non-elected claims as part of a complete response to this office action. Cancellation of the non-elected claims would not preclude the later filing of a divisional application on the non-elected invention (please see 35 USC 120 and 121).

Information Disclosure Statement

2. The information disclosure statement filed 8/26/02 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because copies of the non-patent literature have not been supplied by the Applicants. It has been placed in the application file, but the information referring to the non-patent literature therein has not been considered as to the merits. The Applicants are advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Specification

3. The disclosure is objected to because of the following informalities: In Line 10 of Paragraph 32, numbers in scientific notation should be expressed as powers of 10 instead of 'E' format. Appropriate correction is required.

Claim Objections

4. A series of singular dependent claims is permissible in which a dependent claim refers to a preceding claim which, in turn, refers to another preceding claim.

A claim which depends from a dependent claim should not be separated by any claim which does not also depend from said dependent claim. It should be kept in mind that a dependent claim may refer to any preceding independent claim. In general, applicant's sequence will not be changed. See MPEP § 608.01(n).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1 to 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
7. In Claim 1, the phrase "at least approximately" is indefinite since it is unclear what the metes and bounds of the limitation are. For example, 4.9 is approximately but not at least 5 whereas 10 is at least but not approximately 5.
8. Claim 1 describes first and second transfer devices. It is unclear to which of the transfer devices Claim 8 is referring to (i.e., "said transfer device").

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1, 2, 5, 8 and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (U.S. Patent No. 5,329,479) and Iizuka et al. (U.S. Patent No. 4,641,165).

Ota et al. show most aspects of the instant invention (e.g. Figure 1) including:

- first **5** and second **6** transfer devices each having body regions including channel regions and first and second electrodes and gate electrodes
- a differential storage capacitor **4** with at least one node **7,8** in electrical contact with the first and second electrode of the transfer devices

Ota et al. do not show the first and second electrodes being diffused electrodes or abutting with the nodes of the capacitor and the primary capacitance of the storage capacitor being at least approximately 5 times the inherent capacitances of said capacitor. Iizuka et al. teach (e.g. Figures 5 and 6) to use diffused electrodes **24,26**, to abut the said electrode to the capacitor node **34** and to make the primary capacitance C_2 of the storage capacitor to be at least approximately 5 times the inherent capacitances C_1 (Column 5 lines 5 to 59) to prevent soft-errors (Column 3 Lines 40 to 42). It would have been obvious to a person of ordinary skill in the art at the time of invention to use diffused electrodes to abut the said electrode to the capacitor node and to make the primary capacitance of the storage capacitor to be at least approximately 5 times the inherent capacitances as taught by Iizuka et al. in the device of Ota et al. to prevent soft-errors.

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11. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. and Iizuka et al., as applied to Claim 1 above, and further in view of Tashiro (U.S. Patent No. 5,241,211).

Ota et al. and Iizuka et al. show most aspects of the instant invention (Paragraph 10) except for the SOI substrate. Tashiro teaches (e.g. Column 1 Lines 14 to 23) to use SOI substrates to reduce parasitic capacitances. It would have been obvious to a person of ordinary skill in the art at the time of invention to use an SOI substrate as taught by Tashiro in the device of Ota et al. and Iizuka et al. to reduce parasitic capacitances.

12. Claims 6, 7 and 10 to 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. and Iizuka et al., as applied to Claim 1 above, and further in view of Choi et al. (DRC 2000).

Ota et al. and Iizuka et al. show most aspects of the instant invention (Paragraph 10) except for the features of the transfer devices and the storage capacitor disposed on rails of semiconductor material. Choi et al. teach (e.g. Figure 1) to form semiconductor devices using semiconductor rails to reduce parasitic capacitance and resistance (see Conclusion section on Page 23). It would have been obvious to a person of ordinary skill in the art at the time of invention to form semiconductor devices using semiconductor rails as taught by Choi et al. in the device of Ota et al. and Iizuka et al. to reduce parasitic capacitance and resistance.

Conclusion

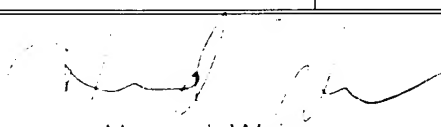
13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wada (U.S. Patent Nos. 6,19,151 and 5,943,279) and Mobley (U.S. Patent No. 4,888,733) teach the use of transfer devices within a DRAM cell.

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14. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. Papers should be faxed to Art Unit 2814 via the Art Unit 2814 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(703) 308-7722** or **-7724**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications. The official TC2800 Before-Final, **(703) 872-9318**, and After-Final, **(703) 872-9319**. Fax numbers will provide the fax sender with an auto-reply fax verifying receipt of their fax by the USPTO.
15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(703) 308-4840** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via Howard.Weiss@uspto.gov. Any inquiry of a general nature or relating to the status of this application should be directed to the Group 2800 Receptionist at **(703) 308-0956**.
16. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/297	2/27/03
Other Documentation: PLUS Analysis Report	2/20/03
Electronic Database(s): EAST, IEL	2/27/03

HW/hw
27 February 2003



Howard Weiss
Examiner
Art Unit 2814